

Monthly Marine Biotoxin Report

March 2004

Technical Report No. 04-14

INTRODUCTION:

This report provides a summary of biotoxin activity for the month of March 2004. Ranges of toxin concentrations are provided for the paralytic shellfish poisoning (PSP) toxins and for domoic acid (DA). Estimates are also provided for the distribution and relative abundance of *Alexandrium*, the dinoflagellate that produces PSP toxins, and *Pseudo-nitzschia*, the diatom that produces domoic acid. Summary information is also provided for any quarantine or health advisory that was in effect during the reporting period.

Please note the following conventions for the phytoplankton and shellfish biotoxin distribution maps: (i) All estimates for phytoplankton relative abundance are qualitative, based on sampling effort and percent composition; (ii) All toxin data are for mussel samples, unless otherwise noted; (iii) All samples are assayed for PSP toxins; DA analyses are performed as needed (i.e., on the basis of detected blooms of the diatoms that produce DA); (iv) Please refer to the appropriate figure key for an explanation of the symbols used on the maps.

Southern California Summary:

Paralytic Shellfish Poisoning

Alexandrium distribution increased significantly in March compared to observations in February (Figure 1). This

(Continued on Page 2)

Figure 1. Distribution of toxin-producing phytoplankton in Southern California during March, 2004.

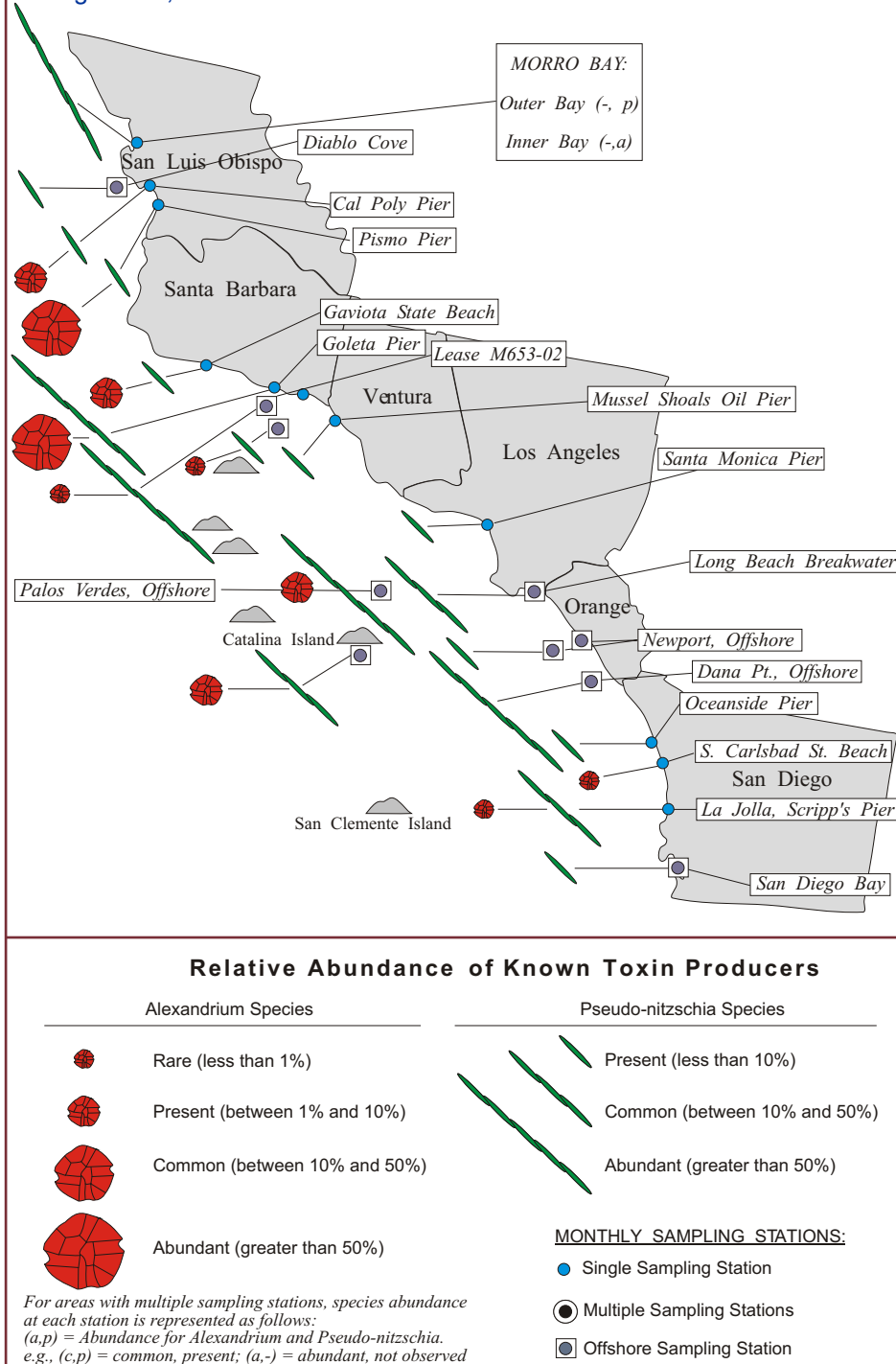
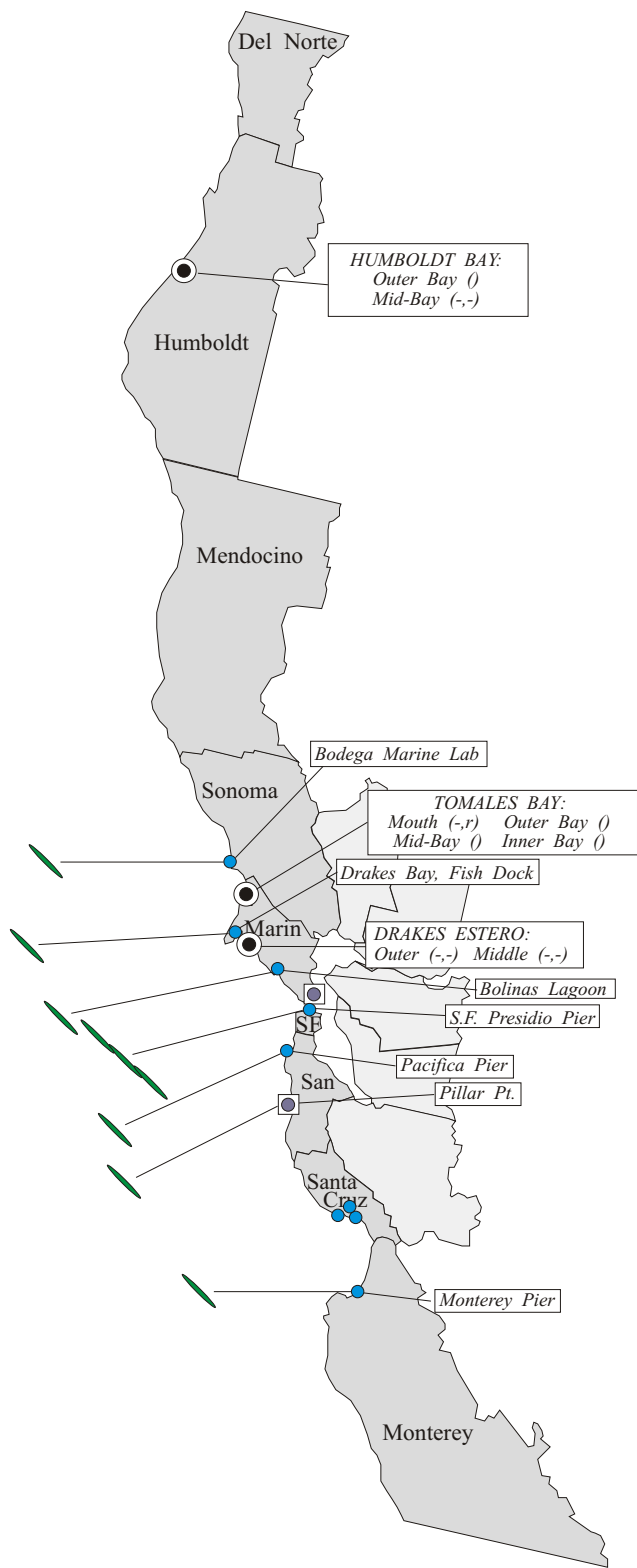


Figure 2. Distribution of toxin-producing phytoplankton in Northern California during March, 2004.



(Continued from Page 1)

dinoflagellate species was observed in increasing numbers along the coast of San Luis Obispo and Santa Barbara, including three offshore sites in this region. In addition *Alexandrium* was observed throughout most of the month near Catalina Island and throughout the month offshore of Palos Verdes (Los Angeles County). Low numbers of this toxin-producing dinoflagellate were also observed at the beginning of March near Carlsbad and later in the month at Scripps Pier in La Jolla (San Diego County).

Low concentrations of PSP toxins were detected in mussels from Morro Bay during the latter half of March (Figure 3). High concentrations of these toxins were detected in mussels from the sentinel station at the Cal Poly Pier in Avila on March 24 (535 ug) and March 31 (217 ug). On March 26 the San Luis Obispo County Public Health Department issued a health advisory advising sportharvesters to avoid consuming any bivalve shellfish in the county. Lower concentrations of PSP toxins were also detected in shellfish samples from Pismo Pier on March 31 (48 ug) and below Pt. Conception at Gaviota Pier on March 20 (46 ug). Increasing levels of these toxins were detected in oysters from an offshore aquaculture lease in Santa Barbara, rising

(Continued on Page 3)

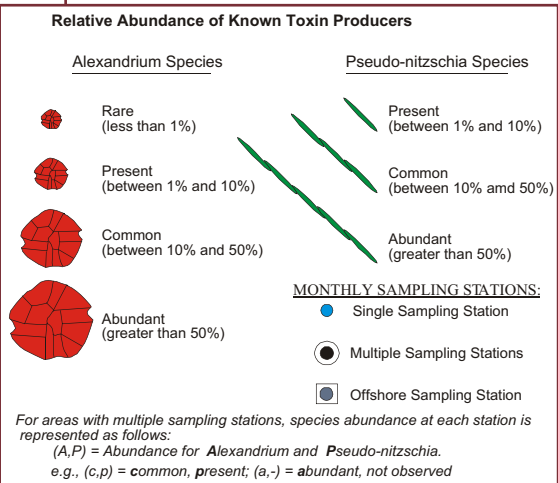
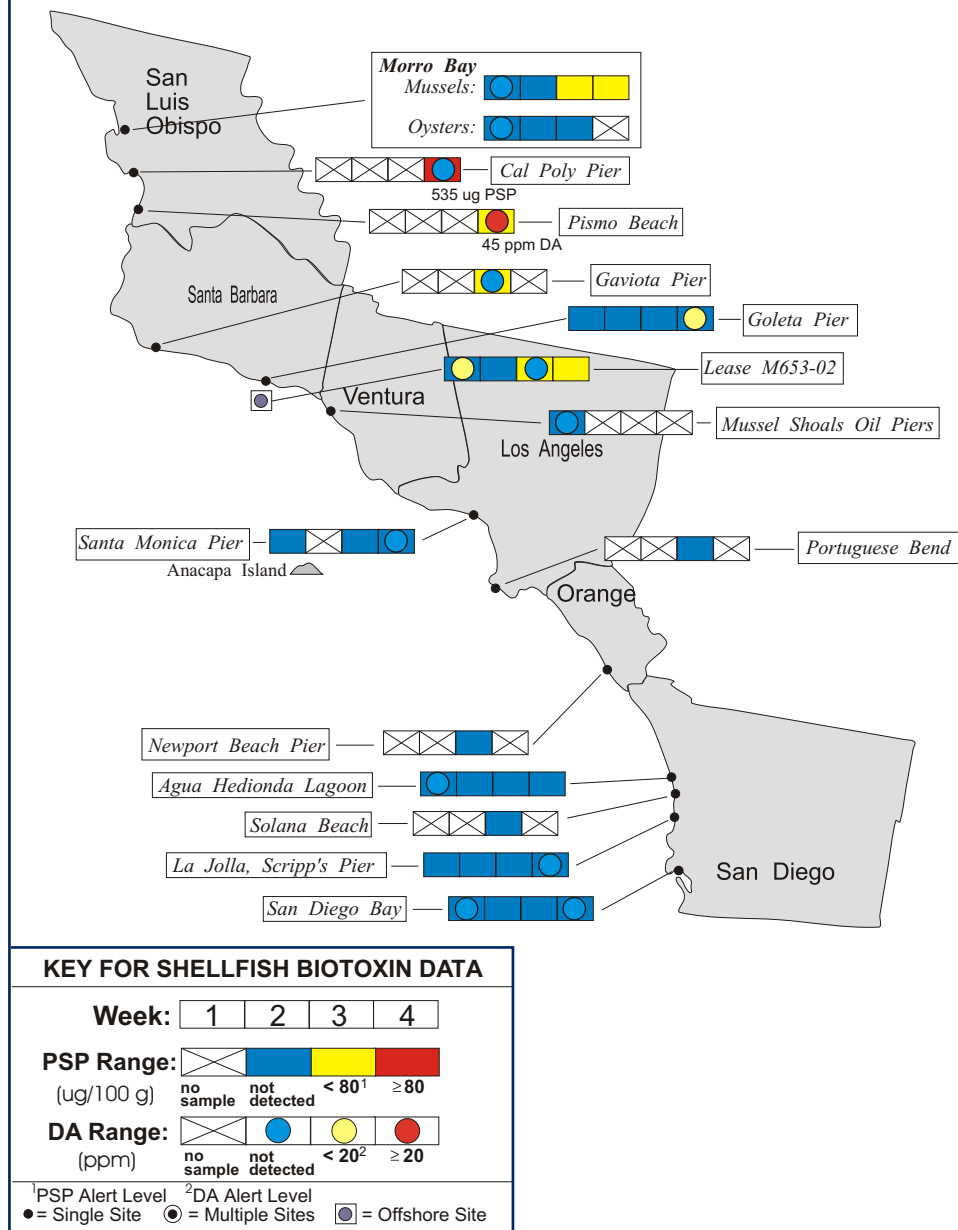


Figure 3. Distribution of shellfish biotoxins in Southern California during March, 2004.



(Continued from Page 2)

from 51 ug (March 17) to 77 ug (March 22).

Domoic Acid

Pseudo-nitzschia was observed along the entire Southern California coast during March. In general the relative abundance of *Pseudo-nitzschia* varied slightly from observations in February, remaining the same at some locations, decreasing slightly at others, while increasing at still others. For example, numbers of this diatom increased inside Morro Bay on March 19, while decreasing offshore of Diablo Cove and at the Cal Poly Pier (Figure 1).

Domoic acid was detected at a high concentration (45 ppm) in mussels from Pismo Pier thanks to the extra effort of researchers at U.C. Santa Barbara (Figure 3). A low concentration (6 ppm) of domoic acid was detected in a mussel sample from Goleta Pier (Santa Barbara County) on March 31.

Environmental Reports

On March 7 the organization WildRescue, based in Malibu (Los Angeles County), reported several potential domoic acid poisonings in brown pelicans.

(Continued on Page 4)

The Marine Biotoxin Monitoring and Control Program, managed by the California Department of Health Services, is a state-wide effort involving a consortium of volunteer participants. The shellfish sampling and analysis element of this program is intended to provide an early warning of shellfish toxicity by routinely assessing coastal resources for the presence of paralytic shellfish poisoning (PSP) toxins and domoic acid.

The Phytoplankton Monitoring Program is a state-wide program designed to detect toxin producing species of phytoplankton in ocean water before they impact the public. The phytoplankton monitoring and observation effort can provide an advanced warning of a potential toxic bloom, allowing us to focus sampling efforts in the affected area before California's valuable shellfish resources or the public health is threatened.

For More Information Please Call:
(510) 412-4635

For Recorded Biotoxin Information Call:
(800) 553-4133

(Continued from Page 3)

Nontoxic Events

The phytoplankton assemblage along the Southern California coast continued to consist of a variety of diatoms (*Chaetoceros*, *Skeletonema*, *Thalassiosira*) and dinoflagellates (*Ceratium furca*, *C. fusus*, *Protoperdinium* spp., *Prorocentrum micans*, and *Lingulodinium polyedrum*).

Northern California Summary:

Paralytic Shellfish Poisoning

Alexandrium was not observed at any site along the Northern California coast in March. PSP toxins were only detected in one shellfish sample during March. Mussels from a sentinel station in the middle of Drakes Estero (Marin County) contained 40 ug per 100 g of tissue on March 1 (Figure 4).

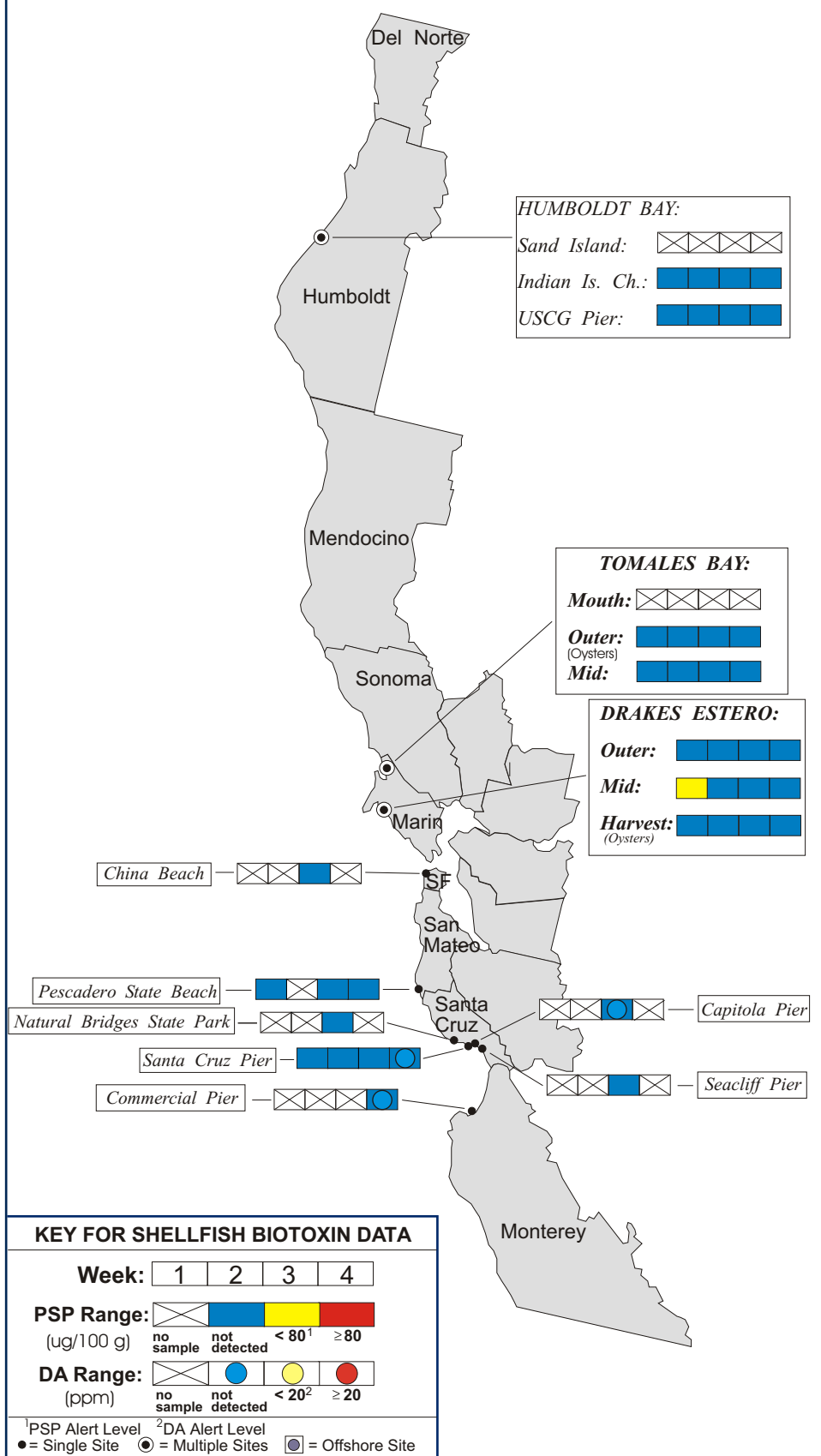
Domoic Acid

Pseudo-nitzschia distribution and relative abundance remained similar to March's observations. Low numbers of this diatom were observed at several sites from Sonoma through Monterey counties (Figure 2). *Pseudo-nitzschia* was observed in low numbers along the Sonoma coast at Horseshoe Cove near the Bodega Marine Laboratory. Numbers of this diatom also increased somewhat at the San Francisco Presidio Pier just inside the Golden Gate. None of the mussel samples analyzed in March contained a detectable level of domoic acid.

Nontoxic Events

Diatoms continued to dominate the phytoplankton assemblage along the Northern California coast in March. Overall the cell mass increased

Figure 4. Distribution of shellfish biotoxins in Northern California during March, 2004.



(Continued on Page 5)

Table 1. California Marine Biotoxin Monitoring Program participants submitting shellfish samples during March, 2004.

COUNTY	AGENCY	# SAMPLES
Del Norte	None Submitted	
Humboldt	Coast Seafood Company	10
Mendocino	None Submitted	
Sonoma	None Submitted	
Marin	Hog Island Oyster Company	6
	Johnson Oyster Company	20
	Marin Oyster Company	3
	Cove Mussel Company	4
San Francisco	San Francisco County Health Department	1
San Mateo	San Mateo County Environmental Health Department	3
Santa Cruz	U.C. Santa Cruz	5
	Santa Cruz County Environmental Health Department	3
Monterey	CDHS Marine Biotoxin Program Volunteer (Jery Norbn)	1
San Luis Obispo	Williams Shellfish Company	8
	U.C. Santa Barbara Marine Science Institute	3
Santa Barbara	Santa Barbara Mariculture Company	5
	U.C. Santa Barbara Marine Science Institute	5
	California Department of Parks and Recreation	1
Ventura	Ventura County Environmental Health Department	1
Los Angeles	Los Angeles County Health Department	2
	Los Angeles Regional Water Quality Control Board	2
Orange	Orange County Health Care Agency	1
San Diego	Carlsbad Aquafarms, Inc.	4
	Scripps Institute for Oceanography	5
	U.S. Navy	4
	CDHS Marine Biotoxin Program Volunteer (Paul Sims)	1

(Continued from Page 4)

significantly from observations in February. A variety of genera were commonly observed and included *Chaetoceros*, *Skeletonema*, *Coscinodiscus*, *Thalassiosira*, and *Biddulphia*.

QUARANTINES:

On March 26 the San Luis Obispo County Public Health Department issued a health advisory warning the public to avoid eating sporharvested bivalve shellfish from the county's coastline. This action was taken in response to the high levels of PSP toxins detected in shellfish.

The annual quarantine on the sport-harvesting of mussels normally goes into effect each year on May 1st and ends at midnight on October 31st. This annual quarantine applies only to sport-harvested mussels along the entire California coastline, including all bays and estuaries. This quarantine does not affect the commercial shellfish growing areas in California. All commercial shellfish growers certified by the State of California are required to submit routine samples for biotoxin analysis, allowing us to closely monitor for the occurrence of any toxin. Harvesting closures are imposed if toxin levels reach the federal alert level.

Consumers of Washington clams, also known as butter clams, are cautioned to eat only the white meat. Persons taking any clams or scallops are advised to remove and discard the dark parts (i.e., the digestive organs or viscera).

Contact the "Biotoxin Information Line" at 1-800-553-4133 or (510) 412-4643 for a current update on marine biotoxin activity.



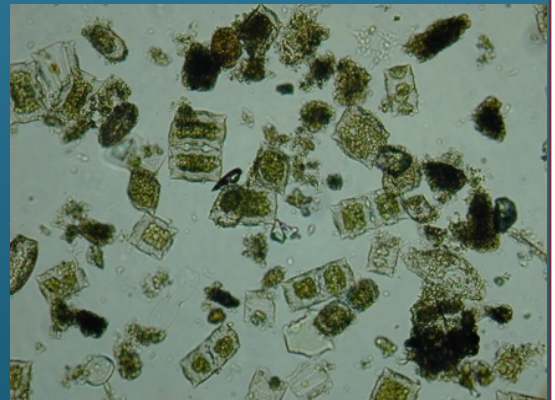
Table 2. Agencies, organizations and volunteers participating in marine phytoplankton sample collection during March, 2004.

COUNTY	AGENCY	# SAMPLES
Del Norte	None Submitted	
Humboldt	Coast Seafood Company	5
Mendocino	None Submitted	
Sonoma	Bodega Marine Lab	1
Marin	CDHS Volunteers (Brent Anderson, Marjorie Siegel, Mary Von Tolksdorf)	9
	Johnson Oyster Company	10
Contra Costa	CDHS Marine Biotoxin Monitoring Program	1
San Francisco	CDHS Volunteer (Eugenia McNaughton)	4
San Mateo	San Mateo County Environmental Health Department	3
	CDHS Volunteer (Sandy Emerson)	1
Santa Cruz	Santa Cruz Environmental Health Department	3
	San Lorenzo Valley High School	1
Monterey	CDHS Volunteer (Jerry Norbn)	2
San Luis Obispo	CDHS Volunteers (Richard Welsh)	4
	Morro Bay National Estuary Program	3
	Tenera Environmental	3
	U.C. Santa Barbara Marine Science Institute	4
	Morro Bay Natural History Museum	3
Santa Barbara	CDHS Marine Biotoxin Monitoring Program	1
	U.C. Santa Barbara Marine Science Institute	5
	Santa Barbara Mariculture Company	4
Ventura	California Department of Parks and Recreation	1
	Ventura County Environmental Health Department	1
	Los Angeles	8
Los Angeles	Catalina Tall Ships Expeditions	8
	Catalina Island Marine Institute	1
	Los Angeles County Sanitation District	5
	Los Angeles County Health Department	1
	Los Angeles Regional Water Quality Control Board	2
Orange	Orange County Sanitation District	4
	Ocean Institute	2
San Diego	San Diego County Environmental Health Department	1
	CDHS Volunteer (Paul Sims, Jeff Kermode)	3
	Scripps Institute for Oceanography	5

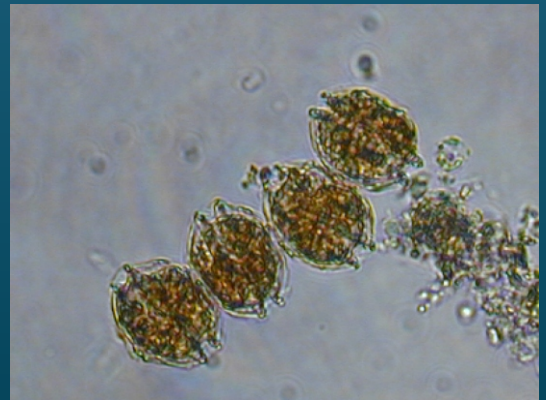
PHYTOPLANKTON GALLERY



Several species of the diatom *Chaetoceros* were common along the Northern California coast.



The diatom *Biddulphia* was abundant in Drakes Bay (Marin County).



Alexandrium, the PSP toxin producer, increased in number and distribution along the Southern California coast.